

5 WHAT IS CLAIMED IS:

1. A tungsten-inert-gas (TIG) welding equipment, comprising:

an electrode, for generating an electric arc between itself and a welded object;

a tubular inner nozzle, disposed surrounding the electrode; and

a tubular outer nozzle, disposed surrounding the inner nozzle, wherein

10 a first shielding gas comprising an inert gas can be supplied from the inner nozzle, and a second shielding gas containing an oxidative gas can be supplied from between the inner nozzle and the outer nozzle.

2. A TIG welding equipment, comprising:

an electrode, for generating an electric arc between itself and a welded object;

15 a tubular central nozzle, disposed surrounding the electrode; and

a plurality of side nozzles, disposed at least on two sides of the electrode as viewed in a welding direction, wherein

a first shielding gas comprising an inert gas can be supplied from the central nozzle, and a second shielding gas containing an oxidative gas can be supplied from the
20 side nozzles.

3. A TIG welding method, comprising:

generating an electric arc between an electrode and an object to weld the object, wherein a first shielding gas comprising an inert gas is conducted toward the welded object surrounding the electrode and a second shielding gas containing an oxidative gas
25 is conducted toward the welded object along a periphery of the first shielding gas.

4. A TIG welding method, comprising:

generating an electric arc between an electrode and an object to weld the object, wherein a first shielding gas comprising an inert gas is conducted toward the welded

5 object surrounding the electrode and a second shielding gas containing an oxidative gas is conducted toward the welded object from at least two sides of the electrodes as viewed in a welding direction.

5. The TIG welding method of claim 3, wherein a concentration of the oxidative gas in the second shielding gas ranges from 2000 vol. ppm to 6000 vol. ppm.

10 6. The TIG welding method of claim 4, wherein a concentration of the oxidative gas in the second shielding gas ranges from 2000 vol. ppm to 6000 vol. ppm.

7. The TIG welding method of claim 3, wherein a concentration of the oxidative gas in the second shielding gas ranges from 3000 vol. ppm to 5000 vol. ppm.

15 8. The TIG welding method of claim 4, wherein a concentration of the oxidative gas in the second shielding gas ranges from 3000 vol. ppm to 5000 vol. ppm.

9. The TIG welding method of claim 3, wherein a concentration of the oxidative gas in the second shielding gas is set so that an oxygen concentration in a welded metal portion of the welded object ranges from 70 wt. ppm to 220 wt. ppm.

20 10. The TIG welding method of claim 4, wherein a concentration of the oxidative gas in the second shielding gas is set so that an oxygen concentration in a welded metal portion of the welded object ranges from 70 wt. ppm to 220 wt. ppm.

11. The TIG welding method of claim 5, wherein an oxide coating formed on a surface of a welded metal portion of the welded object has a thickness of 20 μ m or less.

25 12. The TIG welding method of claim 6, wherein an oxide coating formed on a surface of a welded metal portion of the welded object has a thickness of 20 μ m or less.

13. The TIG welding method of claim 7, wherein an oxide coating formed on a surface of a welded metal portion of the welded object has a thickness of 20 μ m or less.

5 14. The TIG welding method of claim 8, wherein an oxide coating formed on a surface of a welded metal portion of the welded object has a thickness of $20\mu\text{m}$ or less.

 15. The TIG welding method of claim 9, wherein an oxide coating formed on a surface of the welded metal portion has a thickness of $20\mu\text{m}$ or less.

 16. The TIG welding method of claim 10, wherein an oxide coating formed on a
10 surface of the welded metal portion has a thickness of $20\mu\text{m}$ or less.